



INSTITUTE FOR HIGHER EDUCATION
LEADERSHIP & POLICY

POLICY BRIEF

CAREER OPPORTUNITIES:

Career Technical Education and the College Completion Agenda

SUMMARY OF:

Part I: Structure and Funding of Career Technical Education in the California Community Colleges

Part II: Inventory and Analysis of CTE Programs in the California Community Colleges

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March 2012

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The Importance of Career Technical Education to the College Completion Agenda

The Obama Administration has helped articulate the important role community colleges play in educating our nation's workforce and boosting the economy. With a large share of projected job openings requiring college education of less than a bachelor's degree¹ and offering family-supporting wages, the nation's community colleges can make a huge contribution toward a competitive national workforce. Community colleges offer a broad array of career-oriented certificates and associate degrees through what is generally called "career technical education" or CTE. Policymakers across the country are hoping to rely heavily on community college CTE programs to recharge their economies by helping students earn credentials with labor market value.

Our research reveals that this great potential for CTE to contribute to college completion and the California economy is not being realized. As we explained in our 2011 report *The Road Less Traveled*,² students are not widely encouraged to pursue CTE programs and those who do make far more progress in completing course work than they do in acquiring credentials in their fields. Although one third of community college course enrollments are in courses classified as vocational, only 3% of all entering degree seekers earn vocational associate degrees and only 5% earn certificates.³

This brief is a summary of the first two reports in a four-part project (Figure 1) to continue to identify

challenges facing CTE and ways to deliver better results for students and the California workforce. The first report, released January 2012, provides an overview of the complex structure and funding arrangements for the CTE mission and the closely related economic and workforce development (EWD) mission. The second report, released February 2012, examines the full set of career-oriented credentials offered by the California Community Colleges (CCC).⁴ The entire four-part study is guided by a set of criteria that characterize an effective CTE enterprise in support of student success and a competitive state workforce (Figure 2).⁵

This is an important and opportune time to accelerate efforts to strengthen and streamline CTE: new system directions for student success, new system leadership for workforce and economic development, and new opportunities to compete for external funding, all bode well for raising the profile of CTE within the system; business and industry groups are seeking solutions to California's projected shortage of educated workers, especially in critical sectors such as health care and professional, scientific and technical services; and CTE faculty and staff across the colleges are eager to demonstrate and enhance the benefits of career education to California's economy.

Figure 1
IHELP Research Agenda to Improve the Policy Environment in Support of CTE

- Part I: Overview of structure and funding for CTE and identification of key issues (released January 2012)
- Part II: Inventory and analysis of CTE certificates and vocational associate degree programs (released February 2010)
- Part III: Effective state policy approaches used in other states to support CTE
- Part IV: Comprehensive analysis of state policy environment affecting CTE in California and recommendations for policy change

Figure 2
Criteria for an Effective Career Technical Education Mission

1. Programs articulate with K-12 where appropriate
2. Prospective students are helped to identify and enroll in community college CTE programs of interest
3. Program offerings adapt to changing labor market needs
4. Efficient pathways exist for transition into entry level credentials and advancement through credential levels
5. Students and employers understand the skills and competency outcomes of credential programs
6. Credentials offered have market value for students, as validated by outcomes data
7. Resource allocation for CTE programs is predictable and responsive to workforce priorities

Part I - Structure and Funding of Career Technical Education in the California Community Colleges

The community colleges play a lead role within California's workforce development system, which is focused on helping students, unemployed adults, incumbent workers and underemployed workers obtain the skills and credentials needed to participate successfully in the workforce and make progress along a career pathway and in wages earned. Our interest in this project is primarily in the capacity of the CCC to deliver education and training that leads to credentials of value to students and employers and contributes to a competitive state workforce.⁶

Figure 3 illustrates the organizational structure of EWD and CTE at the Chancellor's Office and across the colleges.⁷ Our interest extends beyond CTE to encompass the Economic and Workforce Development mission as it relates to and interacts with CTE.⁸ CTE and EWD are separate but highly related missions – with CTE focused primarily on serving students through credit-based programs and EWD primarily serving employers by addressing the education and training needs of industries of economic importance to the state and its regions.⁹ We include EWD in our study because of its potential to help shape a workforce-relevant CTE mission. Our research to date confirms that there is a clear rationale for sustaining separate CTE and EWD missions but that better collaboration across the two missions would strengthen the CTE mission.

Key Issues

Structure is fragmented and overly complex. The administrative structure in support of CTE and EWD is extraordinarily complicated and seemingly inefficient. As an outgrowth of serial legislative priorities and actions, programs have been layered one after another leaving a structure that is highly fragmented. It is hard for those within an organization to work toward a common goal if they are unfamiliar with all the related parts and how their own efforts might complement, overlap, or even duplicate those of others. Our effort to map out all the pieces to illustrate in Figure 3 was problematic because of the sheer number of programs and the absence of any authoritative compendium of them. Many of the programs appear to have near-identical purposes and the administrative structures do not appear to be logically organized. Organizing economic development and career education by *industry sector* is gaining traction around the country.¹⁰

However, the sixty Regional Centers (organized around ten priority areas), the twelve Statewide Collaboratives, and the twelve Statewide Advisory Committees are organized around a mixture of industry sectors and capacity building. The industry sectors that are addressed vary by entity and some vital industry sectors are not addressed at all by these three entities.

Silos marginalize CTE and hinder program vitality.

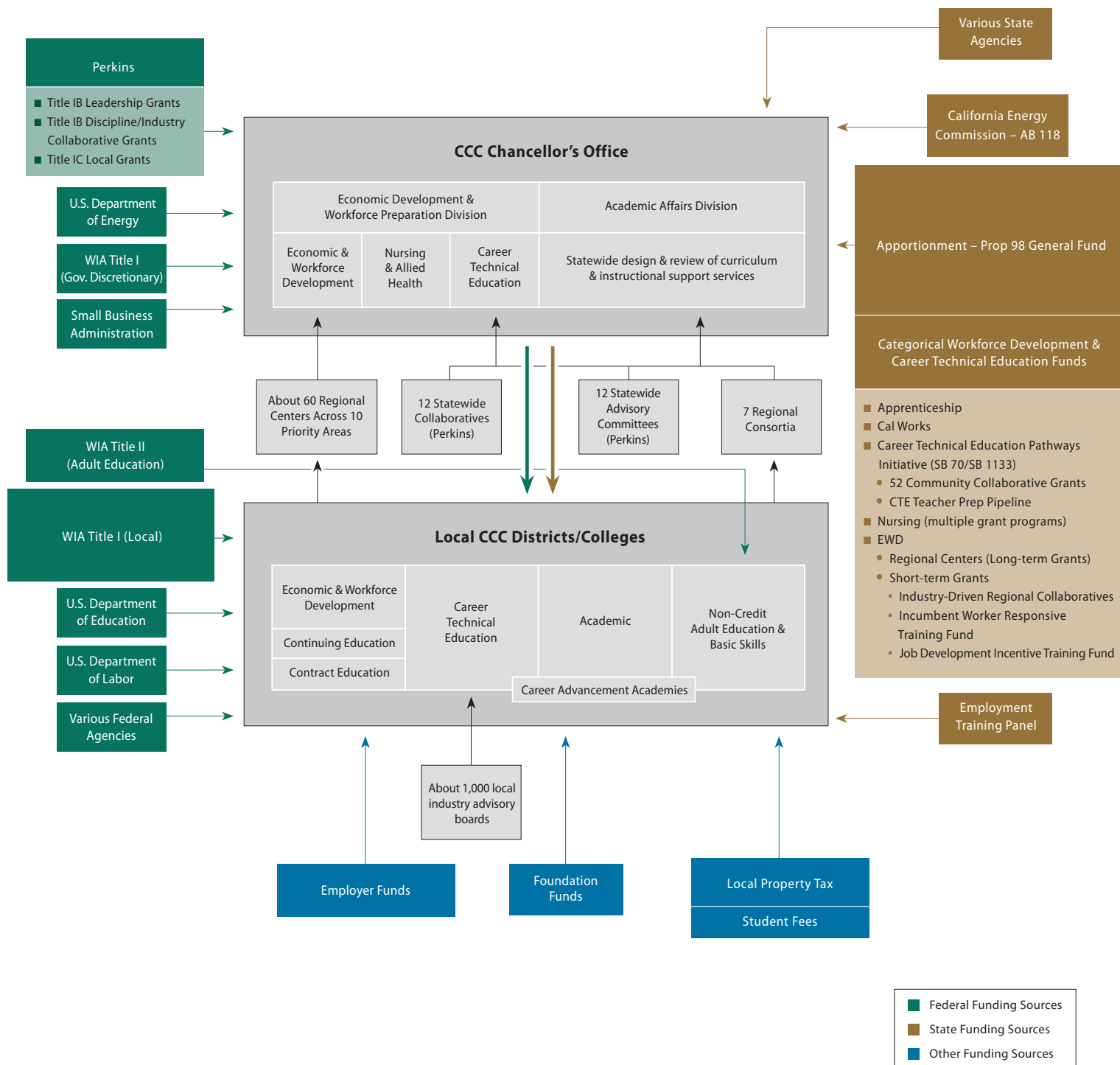
An especially problematic aspect of the administrative complexity is the silos that have developed at the Chancellor's Office between the division of Academic Affairs and the division of Economic Development and Workforce Preparation and, within the latter division, between EWD and CTE. The organizational separation of the whole area from Academic Affairs (a separation largely mirrored at the college level) contributes to the marginalization of career education across the community college system. The lack of integration of CTE and EWD diminishes the impact that EWD partnerships with industry have on keeping the CTE curriculum vital.

Reliance on competitive grants distorts resource

allocation. As shown in Figure 3, the combined missions of EWD and CTE are funded from a large variety of state, federal, and nongovernmental sources. State funds flow primarily through the Chancellor's Office and consist of the regular enrollment-based funding that supports all academic programming and categorical program allocations that support CTE and EWD largely through competitive grants. Federal funds, through the Perkins Act, the Workforce Investment Act, and other federal agencies, provide support to the Chancellor's Office and directly to colleges, also largely through competitive grants. Colleges and districts supplement those two major funding sources with grants and contracts from private foundations and employers. A reliance on competitive grants has several shortcomings. First, the uneven capacity of colleges to compete successfully for grant funding results in a "rich get richer" scenario. Second, competition for funds can impede more efficient cooperative efforts and lead to unnecessary duplication of programs or services within a region. Third, as colleges feel compelled to chase specialized grant opportunities, the overall mission gets shaped by the existence of the grants, potentially misaligning resources with state and regional needs.

Part I - Structure and Funding of Career Technical Education in the California Community Colleges

Figure 3
California Community Colleges Career Technical Education/Workforce Preparation Structure and Funding (Fall 2011)



Chancellor’s Office lacks capacity to provide strategic leadership. The Chancellor’s Office lacks the funds, staff, and authority to provide strategic leadership over the CTE and workforce development missions. It serves primarily a compliance and grant administration function. While workforce development and training must be tailored to regional needs, local efforts would be strengthened by a Chancellor’s Office with the capacity to:

- promote a common vision around industry sectors
- leverage and maximize funding for the system in support of that vision
- ensure that all colleges have quality labor market data to guide planning
- coordinate industry sector strategies around skill and competency standards
- minimize duplication within regions and ensure equity across regions in capacity to fulfill the mission
- align not-for-credit and credit pathways and develop effective credentials to meet workforce needs
- promote expeditious program approval and timely discontinuation of low-priority programs
- lead the transition from course-based to program-based approaches to CTE
- develop robust accountability systems that report student and programmatic outcomes.

Accountability for outcomes is inadequate. State accountability reporting consists primarily of annual counts of degrees and certificates by field and extensive reporting of activities and enrollments. Outcomes by program are not reported because, with few exceptions, students do not officially enroll in CTE programs. Colleges can track course outcomes but not program outcomes, so there is no clear basis for evaluating how well subscribed a program is or how many program entrants complete it and reap benefits in the labor market. Further, the CCC has not yet systematically linked its data to employment data to be able to report labor market outcomes (employment and earnings) for students who have enrolled in CTE programs or courses.

Part II - Inventory and Analysis of CTE Programs in the CCC

We compiled and analyzed an inventory of CTE programs across the CCC to provide baseline information about the range of CTE programs that the colleges offer and in which students enroll. We analyze program information as a basis for understanding how well the breadth and complexity of CTE programming within and across colleges meets students' needs to identify, enroll in, and complete programs with real value in today's labor market. Our analysis suggests that the policies and procedures that have produced the current set of program offerings should be revisited so that the tremendous potential of the community colleges to position students for workforce success can be better realized.

Key Issues

Extensive program offerings appear inefficient.

The vast array of programs across the CCC does not appear to reflect careful planning around which programs are most essential to meeting the needs of the economy and the interests of students in credentials with real value. The colleges collectively offer about 8,000 certificate programs and 4,500 associate degree programs in 142 CTE fields of study. Each community college offers anywhere from 32 to 275 programs in 7 to 52 fields. Clearly there is a relationship between college size and number of

programs offered, but we found some variability within that relationship. Figure 4 shows that larger colleges generally offer more programs but that some smaller colleges have program offerings disproportionately larger than their enrollment might suggest.

While the colleges offer a wide breadth of programs, enrollments and completions (i.e., reported awards of certificates and degrees¹¹) are highly concentrated in a small portion of fields. Across the 2007-08 and 2009-10 school years, the CCC had an average of 347,919 FTES enrolled annually in courses in CTE fields. As shown in Figure 5, the ten highest enrolled fields (just seven percent of the 142 fields) accounted for half of student enrollments. If we extended the figure to include eight more programs, we'd see that 13% of the fields accounted for 75% of the enrollment. Conversely, most fields enrolled few FTES system-wide.

Figure 6 shows that, similar to enrollments, the fields in which students complete a program (i.e., earn a certificate or degree) show a high degree of concentration. Fewer than 6% of all fields produced over half of the awards earned in the three years of data studied. Because completions are heavily concentrated in a limited number of fields, many of the 142 CTE fields offered in the CCC have very few completions. Seventy percent of the fields (or 99 fields) combined account for only 10% of the degrees and certificates awarded.

Figure 4
Larger Colleges Generally Offer More Programs

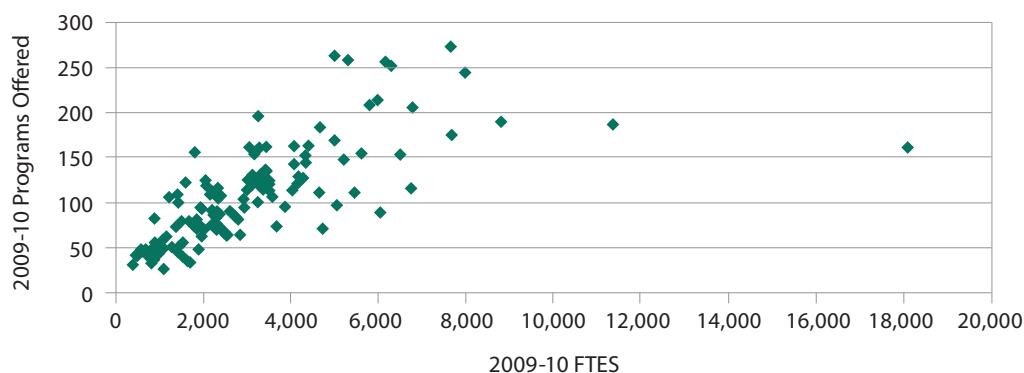


Figure 5
Enrollments are Highly Concentrated in a Few Fields

Field	Average Annual FTES, 2007-08 to 2009-10	Percentage of Systemwide FTES (CTE courses only)	Cumulative Percentage of CTE FTES
Administration of Justice	29,456	8%	8%
Nursing	26,575	8%	16%
Child Development/ Early Care and Education	22,909	7%	23%
Accounting	19,372	6%	29%
Fire Technology	17,764	5%	34%
Office Technology/ Office Computer Applications	13,328	4%	38%
Information Technology, General	11,541	3%	41%
Nutrition, Foods, and Culinary Arts	11,445	3%	44%
Cosmetology and Barbering	10,493	3%	47%
Automotive Technology	9,610	3%	50%

Figure 6
Completions are Highly Concentrated in a Few Fields

Field	Total Completions 2007-08 to 2009-10	Percentage of Total 2007-08 to 2009-10	Cumulative Percentage
Nursing	25,545	13%	13%
Child Development/ Early Care and Education	20,471	10%	23%
Administration of Justice	18,538	9%	32%
Fire Technology	8,921	5%	37%
Business Administration	8,801	4%	41%
Accounting	7,802	4%	45%
Automotive Technology	6,199	3%	48%
Business Management	5,229	3%	52%

Part II - Inventory and Analysis of CTE Programs in the CCC

One reason for the paucity of completions in so many fields may be the tendency of some colleges to offer more programs than can effectively be supported by their enrollment and the size of their faculty.¹² Figure 7 plots the relationship between the total number of CTE completions at a college and the number of programs offered per FTES. It shows that offering fewer programs per student is associated with more certificates and degrees awarded. The dotted line shows generally that colleges on the right side (more programs per enrollment) had more limited completions. This suggests that some colleges may be stretched too thin in their efforts to offer a comprehensive set of CTE programs and may not be able to help as many students complete their programs.

This high concentration of enrollment and completions implies that program review processes are ineffective at keeping program offerings vital. While a few of the small programs may be serving a narrow but critical interest, in general it is inefficient to support many programs that serve few students and contribute little to student success. Such extensive offerings (even if just “on the books” but not currently active) may be confusing for students, who receive little informed counseling about CTE programs.

Abundance of short-term certificates limits workplace value. Two-thirds of all certificate programs offered across the CCC are short-term certificates, or certificates of less than

one year, or 30 credits. While some short-term certificates likely provide a good return for established workers seeking additional skills in their field, research suggests they are of little value to young students with no prior college credential or to older displaced workers seeking training for a new career. The abundance of short-term certificates is also evident in the number of completions in CTE fields. Figure 8 shows completions in CTE fields in the last three years as reported to the Chancellor’s Office. Forty percent of CTE awards issued by the colleges were associate degrees¹³ and about 20% were longer-term certificates of at least 30 credits. The remaining 40% were short-term certificates of less than one year. If all college-approved short-term certificates were included, that share would likely be substantially higher and the shares of degrees and longer-term certificates would be lower.

Having so much invested in short-term certificate programs likely diverts important state investment in CTE programs that will add more to graduates’ earning power and enhance the state’s economic prospects. Short-term certificates can be a first step toward a credential providing real economic benefit, assuming they count fully toward requirements for a longer-term certificate or degree and that students understand the pathway from shorter to longer credentials. But it is not apparent from institutional data the extent to which short-term certificates actually serve as building blocks for longer-term ones.

Figure 7
Colleges Offering More Programs per FTES Generally Produce Fewer Completions

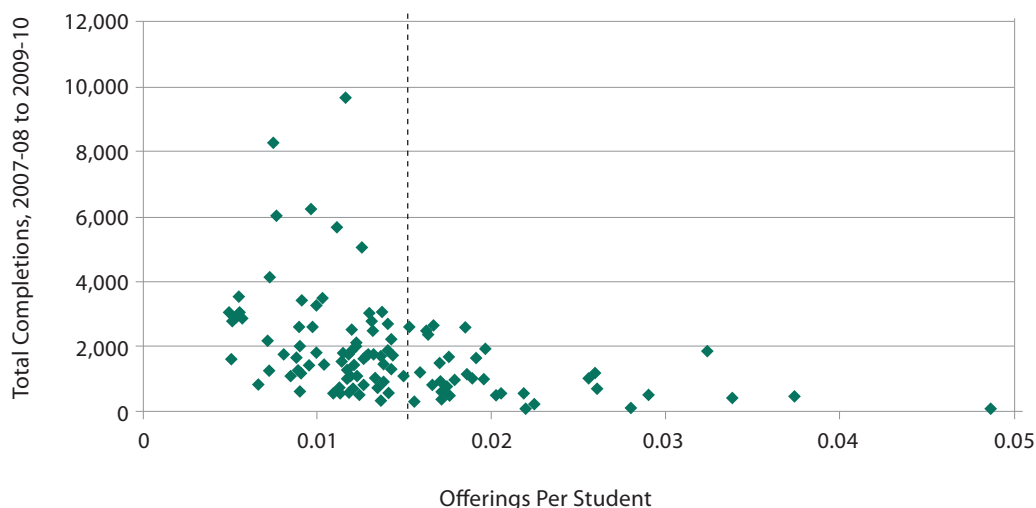


Figure 8
CTE Completions by Type of Award
(includes only awards reported to the Chancellor's Office)

	Total Completions 2007-08 to 2009- 10	Percentage of Total 2007-08 to 2009-10
Associate Degrees	80,327	40%
Certificates:		
< 6 credits*	14,920	8%
6-17 credits*	37,749	19%
12-17 credits*	1,396	1%
18-29 credits	26,008	13%
30-60 credits	33,962	17%
>60 credits	4,453	2%
Total CTE Awards	198,815	100%

* Figures for these short-term certificates are incomplete. Colleges are not required to report these awards to the Chancellor's Office (certificates of 12-17 credits must be reported only for programs that are approved by the Chancellor's Office). So the percentage of awards that are short-term is likely substantially higher than shown in this table, and the percentage of awards that are degrees and long-term certificates is likely lower.

Variability across similar programs is problematic.

The considerable inconsistency across similar programs – in name, credit length, course requirements, expectations for basic skills competency – creates unnecessary confusion that prevents good understanding among students and employers about the meaning of particular credentials. For example, Figure 9 shows that the program requirements for an associate degree in Engineering Technology differ significantly at three colleges in the same economic region. Two of the programs require about 30 major credits, while the third requires only 18 major credits. The specific course requirements vary substantially across the programs as well. This variability is also prevalent in certificate programs.

These inconsistencies across programs can be confusing to students and employers who want to understand the skills and competencies one learns in a program. Most unfortunately, this variability can dilute the value of credentials that students earn because employers are uncertain of the skills, knowledge, and competencies that a credential represents.

Figure 9
Example of Variation across Associate Degree Programs in Engineering Technology

Merced College	San Joaquin Delta College	Modesto Junior College
<p>30 major credits, as follows:</p> <ul style="list-style-type: none"> ■ General Chemistry (5) ■ Physics (4) ■ Engineering Materials (3) ■ FORTRAN Programming (3) ■ Elementary Mechanics (3) ■ Direct and Alternating Current Circuits (5) ■ Descriptive Geometry (3) ■ Calculus I (4) 	<p>18 major credits, selected from (all 3 credits):</p> <ul style="list-style-type: none"> ■ Drafting (Engineering, Computer-aided, Civil, Machine) ■ Materials & Measurement ■ 3-dimensional Modeling ■ Machine Design ■ Mech. & Elec. Systems ■ Industrial Control Systems ■ Applied Surveying ■ Technical Statistics ■ Applied Statistics 	<p>31 major credits, as follows:</p> <ul style="list-style-type: none"> ■ General Chemistry (5) ■ General Physics OR Mech. Heats & Waves (5) ■ Intro to Engineering & Architecture (1) ■ Engineering Graphics (4) ■ Elementary Statistics (5) ■ 6 credits from General Computer Lit (3), Machine Tool Tech (4), Arc & Gas Welding (3) ■ 5 elective credits from a list (mostly Drafting or Calculus)

Preliminary Findings and Next Steps

This ongoing four-part study is guided by a set of seven criteria that characterize an effective CTE enterprise, drawn from an extensive review of the literature on career education and workforce preparation (see Figure 2). Our research to date leads us to conclude, preliminarily, that current policies, structures, and funding arrangements in California have let the CTE operation fall short of satisfying these criteria. There are exceptional programs, dedicated faculty and staff, and myriad examples of student success, but the enterprise as a whole falls short of its potential and of what California needs to sustain a competitive workforce.

Criterion 1. Pathways articulate with K-12 where appropriate. The development of clearly articulated pathways from K-12 to community college, as mandated and funded under the federal Perkins Act and SB 70, is challenged by a decentralized, competitive system in which individual schools and colleges may articulate courses but those courses may not be part of pathways and may not even articulate course-to-course outside of that locality. Articulation is managed at the local level with minimal state-level collaboration between the K-12 and community college systems.

Criterion 2. Prospective students are helped to identify and enroll in CTE programs of interest. It is not easy for prospective students to identify CTE programs in which to enroll because of the lack of emphasis on the program as the unit of planning and analysis, inadequate numbers of informed school and college counselors, the complex nature of the entire operation, and the high degree of variability across colleges in the structure of the curriculum. Further, the sheer number of programs offered would seem to confound some students, especially since some of the 12,500 programs “on the books” are no longer offered and many programs are similar but slightly different. Without proper guidance, it would be difficult for students to know why to pick one over the other.

Criterion 3. Program offerings adapt to changing labor market needs. The very large number of programs serving few students and producing few completions suggests that program offerings are not well targeted to labor market needs and that too many college resources

are devoted to programs of lower value. This likely reflects, in part, cumbersome and ineffective processes for terminating low-priority and low-performing programs. Additional factors may be the uneven access by colleges to timely labor market data to use in program planning, the weak influence that EWD activities have, generally, on the for-credit CTE curriculum, and the spotty record of local industry advisory boards in keeping curriculum current.

Criterion 4. Efficient pathways exist for career advancement through credential levels. There is no question that the community colleges offer a vast and rich set of career-oriented programs. Less obvious is whether those programs are organized into efficient pathways. The marginalization of CTE has precluded a strong emphasis on the award of career-oriented credentials in the CCC. Relatively few certificates and vocational associate degrees are awarded. The abundance of short-term credentials could be “blocks” that a student could stack to advance step-by-step in their careers, but there is no basis either in college catalogs or the management information system to know whether the certificates are designed to provide such pathways. The concentration of completions in a small set of fields and the corresponding low completion records of other programs suggest that whatever pathways do exist are not as efficient as they might be. An accountability system focused on course enrollments and other activities, rather than on program performance and completion, reinforces the systematic lack of attention to the structure of career pathways.

Criterion 5. Students and employers understand the skills and competency outcomes of credential programs. The Chancellor’s Office approves new CTE programs but does not set learning outcome standards for CTE programs or coordinate sector strategies whereby industry advisory boards help the system develop skill and competency standards for credential programs. Consequently, similar programs can be of vastly different scope and content at different colleges. Variations across similar programs that do not reflect different labor market requirements will confuse students and employers about the meaning of those degrees and the skills they certify and will, in turn, devalue the credential.

The wide range of total credits and substantive requirements across CTE programs (even in the same region) would seem to leave doubt among employers about the skills and knowledge that a new hire would hold and the level of responsibility for which he or she would be suited. The variation of program content and depth is a problem for students as well, who may not know what jobs they will be prepared for by choosing a particular program.

Criterion 6. Credentials have market value for students, as validated by outcomes data.

The uncertainty among employers about the skills and competencies of graduates impinges on the market value of credentials. In addition, colleges do not systematically track labor market outcomes of graduates and cannot track outcomes by program because, with a few exceptions, students do not enroll in programs. Nor do colleges track labor market outcomes for students who enroll in selected courses without completing a certificate or degree, yet colleges emphasize that many students benefit from taking just a few courses. The system reports only aggregate labor market outcomes for all students who earned a degree or certificate, so absent local efforts, there is no basis for validating the labor market value of individual credentials. The substantial share of CTE awards that are short-term certificates raises questions about whether many CCC students are earning credentials with real value in the labor market.

Criterion 7. Resource allocation for CTE programs is predictable and responsive to workforce priorities.

Despite higher-than-average costs in many CTE fields, CTE programs generally receive no more per-student state funding than liberal arts and science programs. Most programs seek to supplement their budgets through competitive grants, but uneven capacity to obtain grants creates unpredictable and inconsistent funding levels. Findings from the analysis of the program inventory suggest that resources are not always allocated in response to workforce priorities. The high incidence of programs with few enrollments and of programs with few completions indicates that resources might be spread too thinly over too large an array of programs – some of which are not high priorities for students or employers.

Moving Forward

California's future unquestionably depends on a healthy CTE enterprise across its community colleges. There is an important window of opportunity to strengthen the CTE mission so that it can better realize its tremendous potential to serve students, regions, and the California economy. The Chancellor's Student Success Task Force recommendations, the efforts by the new Vice Chancellor for Economic and Workforce Development to improve collaboration between EWD and CTE, and legislative attention garnered by the impending January 1, 2013 sunset date for EWD all provide a window for cooperative efforts to more fully realize the potential for community college CTE programs to help sustain a competitive California economy. Our research has given us first-hand evidence of the heroic efforts that are occurring across the system to build and sustain impressive CTE programs in the face of very real obstacles. The principal goal of this four-part research project is to improve the policy environment in which CTE educators operate so that the CTE mission can be fulfilled, to the benefit of all Californians, without quite the degree of heroism that is required today from the CTE community. Our work will continue with a report describing some policy directions undertaken by other states that might offer lessons for California, followed by a report offering recommendations for a policy agenda to strengthen support for and outcomes from community college CTE programs.

- 1 Symonds, W.C., Schwartz, R.B., & Ferguson, R. (2011). *Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century*. Cambridge, MA: Harvard Graduate School of Education; Carnevale, A.P., Smith, N., & Strohl, J. (2010). *Help wanted: Projections of jobs and education requirements through 2018*. Washington, DC: Center on Education and the Workforce, Georgetown University.
- 2 Shulock, N., Moore, C., & Offenstien, J. (2011). *The road less traveled: Realizing the potential of career technical education in the California Community Colleges*. Sacramento, CA: Institute for Higher Education Leadership & Policy.
- 3 Based on analyses of all entering students who intended to complete a certificate or degree, as described in our report titled *The Road Less Traveled*. Completion rates include only those awards that are reported to the Chancellor's Office (all associate degrees and certificates of 18 units or more). Completion rates can undercount the number of students who complete all requirements for a certificate or degree because students must apply for the award and some do not do so. Completion rates calculated by the Chancellor's Office for Perkins reporting are much higher because they include only students who have successfully completed a minimum threshold of 12 units of related coursework (defined at the 2-digit TOP code) within the past three years, with at least one course above the introductory level, or who have earned a degree or certificate whether or not they met the threshold requirements.
- 4 Both reports can be accessed and downloaded from our website: www.csus.edu/ihelp.
- 5 See Appendix in the Part I report for a listing of the research and policy literature that guided the selection of the criteria.
- 6 Some CCC students enroll in CTE courses to update or improve specific job skills, without any intent to complete a certificate or degree. Others enroll to earn industry certifications whose requirements don't match those of a certificate program and thus do not earn a college credential. Other students intend to earn a credential but find good employment before they complete it. These are valid roles for the CTE mission but a certificate or degree of value in the workplace arguably provides a student with greater lifelong, portable career credentials and career opportunities.
- 7 Organizational changes are underway but this figure shows the arrangements that have prevailed for years and helped produce the outcomes that we have observed.
- 8 In 1991, AB 1497 (Polanco) codified the Economic Development Program and in 1996, SB 1809 (Polanco) amended the community college mission to include "advancing economic growth and global competitiveness."
- 9 For a concise description of the mission of EWD, see Chancellor's Office website: <http://www.cccco.edu/ChancellorsOffice/Divisions/WorkforceandEconomicDevelopment/IndustryPartnershipPractices/tabid/379/Default.aspx>.
- 10 Stephens, R. (2009). *Charting a path: An exploration of the statewide career pathway efforts in Arkansas, Kentucky, Oregon, Washington and Wisconsin*. Seattle, WA: Seattle Jobs Initiative; Hughes, K. & Karp, M. (2006). *Strengthening transitions by encouraging career pathways: A look at state policies and practices*. New York: Community College Research Center, Teachers College, Columbia University.
- 11 Colleges are only required to report the number of awards in Chancellor's Office-approved programs, which include all associate degrees and certificates of 18 credits or above, or 12-17 credits if included on student transcripts. While some colleges choose to report data on shorter-term certificates, comprehensive figures are not available for the shorter-term, college-approved programs.
- 12 It could also be that certain fields award a lot of certificates of fewer than 18 units and choose not to report them to the system. We have no way of knowing how that under-reporting affects the distribution of awards by fields. However, we have noted that short-term certificates, alone, do not generally provide economic return to students. So our finding of highly concentrated completions among very few programs raises valid concerns that many programs are not providing good opportunities for students.
- 13 Some CTE students are awarded associate degrees in interdisciplinary studies, which are not included in our analyses as they are of questionable value in the marketplace and we are focused on workforce credentials.



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The project is supported by a grant from The James Irvine Foundation

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